



Advanced Mathematics  
Support Programme®



## Year 13 Regular Problem Solving Classes

Online

29th January 2022

### Overview

A series of maths problem solving classes designed to develop students' problem solving skills so they have the confidence to apply for universities that include an admissions test as part of their offer.

These regular classes offer students the opportunity to develop their problem-solving skills by trying out challenging problems that require deep mathematical thinking, and so help them meet the challenges they may face in embarking on a maths-rich university course or career. The problems are fun and rewarding and attending the sessions will enrich a student's mathematical experience.

Students will look at problems from a range of sources including Sixth Term Examination Papers (STEP) used by Cambridge and Warwick Universities and the Mathematics Admissions Test (MAT) used by Oxford University and Imperial College, London.

### Aims

- To develop confidence in dealing with maths problems
- To develop students' resilience when attempting maths problems
- To provide information about the problem solving skills required in university admissions tests
- To give students the opportunity to attempt problems both in groups and on their own
- To give students the opportunity to think about how solutions to problems are presented
- To provide students with the opportunity to explore areas of maths not in the standard curriculum
- To provide students with the opportunity to study questions from the STEP and the MAT examinations.

### Who will benefit from attending?

The classes are suitable for any A level Mathematics student with an enquiring mind who wish to develop their problem solving ability at A level and beyond.

They are particularly suitable for those students who are required to sit an admissions test as part of a university offer.

## Content

Students attending the classes will encounter problems covering a variety of topics. These include:

- Working with integers
- Reasoning and logic
- Sequences and series
- Induction
- Curve sketching and identification
- Coordinate geometry
- Vectors
- Trigonometry
- Complex numbers
- Integration
- Differential equations

## Materials and Equipment

If the classes are being held online, you will need access to suitable equipment. You are advised to use a headset or headphones with an inline microphone to provide the best sound quality and to prevent audio issues for other users. A laptop with a built-in webcam and microphone may be sufficient if you're in a quiet area but please take the time to check this before the session. BBB is designed to be used on a variety of platforms but you will get the best experience via a desktop or laptop computer, running either Google Chrome or Mozilla Firefox as the browser.

Note: Internet Explorer and Edge are not suitable currently.

Access to GeoGebra or desmos will also be useful.

## Study Schedule

These classes are intended for Year 13 mathematics students who are planning to study mathematics, or a heavily mathematical course at university. The content will typically be based on university admissions tests and extension papers, and will primarily be based on pure maths, although these are also sessions on applied maths. The classes will help students bridge the gap between school and university mathematics, although the focus will be on developing problem solving skills and an understanding of the next level of mathematics, rather than preparing for admissions tests or advanced papers. If students are required to sit an entrance exam as a compulsory requirement for their university offer, they should apply for the [STEP 2 and 3 Preparation Course](#) instead.

The course consists of 8 lessons and classes will take place online on Saturdays from 10:00 to 12:00. This is the schedule of the course

Date	Time	Topic
Saturday Jan 29	10:00 - 12:00	Integers and Logic
Saturday Feb 5	10:00 - 12:00	Curve sketching and coordinate geometry
Saturday Feb 12	10:00 - 12:00	Integral calculus and differential equations
Half-term		
Saturday Feb 26	10:00 - 12:00	Induction & sequences and series
Saturday Mar 5	10:00 - 12:00	Trigonometry
Saturday Mar 12	10:00 - 12:00	Complex numbers
Saturday Mar 19	10:00 - 12:00	Mechanics
Saturday Mar 26	10:00 - 12:00	Statistics

## Key Facts

<b>Event ref:</b>	#9419
<b>Audience:</b>	Students
<b>Target year:</b>	Year 13
<b>Curriculum focus:</b>	University admissions tests, A level Mathematics, A level Further Mathematics
<b>Mathematical focus:</b>	Pure, Problem solving
<b>Event format:</b>	Student course
<b>Event length:</b>	20 hours
<b>Region:</b>	London and South East
<b>Venue:</b>	Online
<b>Next session:</b>	Sat 26th Mar 2022
<b>Course times:</b>	10:00 - 12:00

## Registration

For more information, or to register for this event, please visit <https://amsp.org.uk/events/details/9419>